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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/406,684	09/27/1999	KAZUHIKO TSUDA	1114-134	1852

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EXAMINER

SCHECHTER, ANDREW M

ART UNIT PAPER NUMBER

2871

DATE MAILED: 08/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/406,684

Applicant(s)

TSUDA ET AL.

Examiner

Andrew Schechter

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 May 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-14, 17, 19 and 22-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-14 and 17 is/are allowed.
- 6) ☒ Claim(s) 8-10, 19 and 22-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 28 May 2002 have been fully considered but they are not persuasive.

Regarding claims 11-13, the examiner does not agree with the arguments by the applicant that the combination of *Ichimura*, JP 9-90426, and *Chang* makes no sense and has no suggestion in the cited art. However, the examiner on further consideration deems the combination to incorporate an unacceptable level of hindsight reasoning, and therefore withdraws the rejection of claims 11-13.

Regarding claim 19, the examiner does not agree with the argument by the applicant that *Ichimura*'s glass sheet 18 "is not a photomask". [p. 10] It is placed over a photosensitive resin film, it has portions to transmit and block illuminance in order to create exposed and unexposed regions in the resin, which is then developed. It may be a different type of photomask from that used by the applicant or elsewhere in the references, but it is still a photomask. *Ichimura* therefore reads on both the previous and amended language of claim 19.

Claim 22 is the same as the previous claim 14, but amended with the same language as was added to claim 19. Claims 23-25 are analogous to previous claims 16-18. As discussed above, the amended language does not distinguish the claims over *Ichimura*, so claims 19, 8-10, and 22-25 are rejected analogously to the previous claims.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 8, 19, 22, and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by *Ichimura*, U.S. Patent No. 6,181,397.

Ichimura discloses a method of manufacturing an LCD having substrates, liquid crystal, a reflecting film [13a], comprising applying a photosensitive resin [12], forming asperities [12m] which do not extend all the way through, in a first region, and forming a contact hole [30], in a second region, by exposing the first region to various integrals of exposure amounts to get various film thicknesses [see Fig. 4], exposing the second region with an integral of exposure amount different from the first region, developing and heat treating the resin, and forming the reflecting film to contact a TFT through the contact hole [see Example 2].

The additional limitations of claims 19 and 22 over claim 1 is that first and second photomasks are used, as shown in Fig. 4 [18 and 17] [see above for discussion of photomask 18 and the amendments to claims 19 and 22 (over the previous claim 14)]. Claims 19 and 22 are therefore anticipated. Uniform and low-illuminance exposure is done with the first photomask; uniform and higher is done with the second [see Example 2]. Claims 8 and 23 are therefore anticipated.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Ichimura* as applied to claim 22 above.

The additional limitation of claim 24 is that the resin is a positive photosensitive resin, which is met by *Ichimura*, and that the method further comprises removing the resin left in the second region after developing. This is not necessarily disclosed by *Ichimura*, but a step of removing resin via dry etching, for instance, is extremely well-known in the art and it would be obvious to one of ordinary skill in the art to do so, motivated among other reasons by the desire to avoid electrical faults occurring due to resin which is left in the second region. Claim 24 is therefore unpatentable.

6. Claims 9, 10, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Ichimura* as applied to claim 8 above, and further in view of *Mitsui et al.*, U.S. Patent No. 5,418,635 and U.S. Patent No. 5,408,345.

Mitsui '635 discloses using the photomask shown in Fig. 4 to shape asperities, rather than the surface provided with minute irregularities [17] of *Ichimura*. This photomask meets the further limitations of claims 9 and 10, and would have been obvious to one of ordinary skill in the art to use it, motivated among other reasons by the teaching of *Mitsui*, '345 that "the bumps are arranged irregularly" [col. 5, line 43] which is "effective...to increase the intensity of light scattering in the direction vertical to the display screen, for the incident light from all angles." [lines 47-50], while the size is motivated by *Mitsui* '635 [col. 6, lines 42-47] among other reasons. Claims 9 and 10 are therefore unpatentable.

When forming the above device of *Ichimura* with the photomask of *Mitsui*, the resin is a positive photosensitive resin. However, positive and negative photosensitive resins are art-recognized equivalents, so it would have been obvious to one of ordinary skill in the art to use a negative resin instead, using inverse masks and switching the high and low illuminances appropriately. Claim 25 is therefore unpatentable.

Allowable Subject Matter

7. Claims 11-14 and 17 are allowed.
8. The following is an examiner's statement of reasons for allowance:

The amended limitation of claim 14 (from claim 15, previously indicated as allowable subject matter) is that the exposure amounts of the first and second photomasks are the same. This is not disclosed by the prior art of record. When using a single gray-tone mask there is obviously only one exposure amount; however, the examiner is not aware of any motivation for using the same exposure amount when there are two distinct photomasks. Claim 14 is therefore allowed, as is claim 17 which depends on it.

As discussed above, the prior art does not fairly suggest using a single photomask with light-transmitting, light-intercepting, and semi-light-transmitting portions to form asperities and contact holes, in the process of making a reflective LCD. Claims 11-13 are therefore allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (703) 306-5801. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Sikes can be reached on (703) 308-4842. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

AS
Andrew Schechter
July 30, 2002


TOANTON
PRIMARY EXAMINER